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MAY 3.

MR. ARTHUR ERWIN BROWN, Vice-President, in the Chair.

Thirty-nine persons present.

A Spencer Objective.—MR. F. J. KEELEY described a microscope objective of one-fourth inch focus, made in 1860 by Charles A. Spencer. It was recently necessary to take apart the back system for re-balsaming, when it was found to consist of five lenses, three of which were convex and two concave. One of these proved, on examination with polarized light, to be fluorite, which mineral, while isotropic, exhibits characteristic optical anomalies between crossed prisms that permit of its identification, at least in contradistinction from glass or other material used for lenses. The fluorite lens is perfectly preserved, as might be expected from the stable character of the mineral. When objectives of more recent manufacture containing fluorite have deteriorated, the fluorite has been blamed for faults which should undoubtedly have been attributed to unreliable glass used in connection with it.

This objective is historically interesting as illustrating the complex nature of the corrections adopted by Spencer at so early a date, as well as confirming the previous reports that he had appreciated the possibilities connected with the use of fluorite in securing superior color corrections and employed it for the purpose twenty years before it came into use abroad.

The objective has an aperture of 142 to 152 degrees, according to position of adjustment, which acts by rectilinear movement of back systems, and is unusually well corrected for color. It resolves *Pleurosigma angulatum* sharply into dots with central light from mirror, and with oblique illumination resolves markings 76,000 to the inch. In some respects its performance was possibly slightly sacrificed in eliminating color, for with a large central illuminating cone, its definition is somewhat inferior to that of objectives of similar power made by Tolles at slightly earlier and later dates, which show considerably more color. The latter, although both over forty years old, compare favorably, optically and mechanically, with best achromatics made to-day, and it seems not unlikely that Spencer abandoned the use of fluorite because he realized that sharp definition was more important than the elimination of last trace of color, rather than from any fear of its lack of permanency.

The Publication Committee reported that a paper had been presented for publication under the title "Observation on Hyrax," by Henry C. Chapman, M.D. (April 29, 1904).

The following was ordered to be printed: